

FEASIBILITY STUDY

Town of Landis

Extension of SR 1121 (Kimball Road)
From SR 2739 (Main Street)
To US 29 / 601 (Cannon Blvd) at SR 1221 (Bostian Road)

Rowan County

Division 9

FS-0309A



Prepared by the
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Date

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FS – 0309A

I. General Description

This feasibility study describes the extension of SR 1121 (Kimball Road) from SR 2739 (Main Street) to US 29/601 (Cannon Road) at SR 1221 (Bostian Road), a distance of approximately 0.8 mile, (See Figure 1). The recommended cross-section is a two-lane shoulder section on variable right-of-way and includes a grade separation of the Southern Railroad.

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental design investigations. The purpose of this study is to describe the proposed project including costs, and to identify potential problems that may require consideration in the planning and design phases.

II. Background

The purpose of this project is to improve the traffic operations, safety, and access in this area by providing an extension of SR 1121 (Kimball Road) between SR 2739 and US 29/601 with a proposed railroad grade separation.

The Towns of Landis and China Grove and the Cabarrus-Rowan Metropolitan Planning Organization (MPO), and the town manager of China Grove support this project.

SR 1121 is designated as a collector in the North Carolina Statewide Functional Classification System and a minor thoroughfare in the Cabarrus-Rowan Urbanized Area Thoroughfare Plan. SR 1121 is an existing two-lane shoulder section with pavement width of 28 feet.

The proposed extension of Kimball Road will include a crossing a North Carolina Railroad Company line bearing traffic of the Norfolk Southern Railway (NS). There are typically 40+ train moves daily in the Landis area, including 6 Amtrak trains. Maximum allowable speed for passenger trains is 79 mph; freight trains typically operate at up to 50 mph. Considering the existing rail and highway traffic within this area, the railroad crossing with the proposed Kimball Road Extension exceeds the warrants for a railroad grade separation.

In addition, this proposed extension of Kimball Road will also impact a Duke Power Transmission easement through this area.

The development along the existing section of SR 1121 is primarily a mixture of commercial business and residential housing within the project corridor. The new alignment for extension is presently undeveloped commercial owned land with the exception of Businesses located at the US 29/601 intersection and the intersection of Main Street, also intersecting the project corridor is Duke Power easement and Southern Railroad.

III. Traffic and Safety

There are no existing traffic signals on this project.

Under the existing conditions, the current year average daily traffic (ADT) along SR 1221 (Bostian Rd.) and SR 1220 (Eudy Rd.) ranges from 1,400 vehicles per day (vpd) to 1,600 vpd and is projected to range from 2,200 vpd to 2,600 vpd in the 2035 design year. If the proposed extension of SR 1121 (Kimball Road) is provided, the current year ADT is expected to range from 1,600 vehicles per day (vpd) to 2,900 vpd, while the 2035 design year traffic ranges from 3,300 vpd to 4,700 vpd. Truck traffic is estimated to make up approximately three percent of daily traffic on the project.

Under the recommended proposed improvements, Kimball Road Extension/US 29/601 and Kimball Road and Main Street intersections will operate at a Level of Service (LOS) "B" or better through the 2035 design year and promote safer travel, operations, and enhance pedestrian safety.

During the three-year period from June 1, 2000 to May 31, 2003, the following shows a list of roads either intersecting or parallel with the proposed extension:

1. SR 1221 (Bostian Road) from US 29/601 to SR 2739 (Main Street), with a total crash rate of 631.27(acc/100mvm), compared to the state crash rate of 407.28 (acc/100mvm) a 35% increase.
2. SR 2739 from SR 1197 (Mount Moriah Church Road) to SR 1221, with a total crash rate of 210.60 (acc/100mvm), which is lower than the state crash rate of 634.34 (acc/100mvm).
3. US 29/601 from SR 1243 (Daugherty Road) to SR 1238 (China Grove Church Road/2nd Avenue), with a total crash rate of 227.53 (acc/100mvm), compared to the state crash rate of 432.42 (acc/100mvm).
4. SR 1220 (Eudy Road) from SR 1242 (North Chapel Street) to SR 2739 (Main Street), with a total crash rate of 1522.07 (acc/100mvm), compared to the state crash rate of 407.28 (acc/100mvm) a 73% increase.

The number and the severity of crashes are expected to decrease with the suggested improvements.

IV. Description of Alternatives

It is proposed to extend the existing roadway, SR 1121 (Kimball Road), in order to promote a safer connection for motorists, pedestrians, and bicyclists and alleviate the traffic conflict with the Southern Railroad. The proposed extension of Kimball Road is

approximately 0.8 mile in length and shown in Figure 1. The details of the proposed improvements are as follows:

Two-lane shoulder section with 12' travel lane and 8' outside shoulders (4' which is paved) on variable right-of-way from approximately 250' North of SR 2739 (Main Street) intersection on SR 1121 (Kimball Road) to 400' south of US 29/601 (Cannon Blvd.) on SR 1221 (Bostian Road). This cross-section includes grade-separation over SR 1242 (Chapel Street) and Southern Railway approximately 585' long, it also includes the extension of Brandon Scott Lane to intersect with the proposed extension of Kimball Road and the cul-de-sac of SR 1221 north of US 29/601 existing intersection.

Under the Alternative #1 proposal, it is anticipated there will be ten (10) residential and seven (7) business relocatees. The total cost of this alternative is estimated to be \$16,500,000.

Construction	8,900,000
Right-of-Way	6,400,000
Utilities	1,200,000
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Estimated Project Cost	16,500,000

Note: Share the road bicycle lane is included in the construction costs shown above.

Auxiliary turn-lanes and Y-line improvements have also been included in the construction cost shown above, at the following locations:

- a) A left turn-lane, traveling north on SR1221 for the US 29/601 intersection.
- b) A left turn-lane, traveling south on Kimball Extension for SR 1221 intersection.
- c) A left turn-lane, traveling north on Kimball Extension for SR 2739 intersection.
- d) A left turn-lane, traveling south on SR1211 for SR 2739 intersection.
- e) A cul-de-sac for SR 1221 at the US 29/601 intersection.

V. Community Issues

A detailed investigation was not conducted for this feasibility study. However no impacts to parks, recreation areas, schools or community facilities are anticipated with this project. Although there are two churches and a grave yard in close proximity of the project limits

VI. Natural and Environmental Issues

A detailed environmental study was not conducted for this feasibility study; however the following is a preliminary review of environmental issues that might have a potential impact to the project. The information obtained for the environmental screening is from a Geographic Information System (GIS) database.

Along the project, the GIS database indicates the proposed corridor crosses an area identified on the GIS data base as the Yadkin River Basin water supply watershed this area will need to be further investigated. No known historic or property impact concerns were found located within the corridor during this preliminary investigation.

VII. Recommendations

After analyzing the available information, it was determined that a two-lane shoulder section with rail road grade separation on a variable right-of-way (150' average) would accommodate the projected 2035 traffic volumes. The total project cost of this recommended two-lane shoulder section with 12' travel lane and 8' shoulders (4' which is paved) from 400' south of US 29/601 (Cannon Blvd.) to SR 1221 (Bostian Road) to approximately 250' North of SR 2739 (Main Street) intersection on SR 1121 (Kimball Road). This cross-section includes grade-separation over SR 1242 (Chapel Street), Duke Power Company easement and Southern Railway and includes the extension of Brandon Scott Lane to intersect with the new SR 1121 and the cul-de-sac of SR 1221 north of US 29/601 existing intersection. The total cost of this project is estimated at \$16,500,000.

VIII. Other Alternatives Considered

As part of this study, we also considered an alternative which intersected the Southern Railway with an at-grade crossing. The cross-section for this alternative is also a two-lane shoulder section with 12' travel lanes and 8' outside shoulders (4' which is paved) on variable right-of-way from just north of SR 2739 (Main Street) to just south of US 29/601 (Cannon Blvd.) on SR 1221 (Bostian Road). In addition to an at-grade railroad crossing, it also includes the extension of Brandon Scott Lane to intersect with the new SR 1121 and the cul-de-sac of SR 1221 north of US 29/601 existing intersection. This alternative is not recommended at this time because of the traffic safety and operational benefits of the proposed rail grade separation.

Under this alternative proposal, it is anticipated there will be ten (10) residential and seven (7) business relocatees. The total cost of this alternative is estimated to be \$ 11,600,000.

Construction	4,500,000
Right-of-Way	5,900,000
Utilities	1,200,000
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Estimated Project Cost	11,600,000

Note: Shared the road bicycle lane is included in the construction costs shown above.

Auxiliary turn-lanes and Y-line improvements have also been included in the construction cost shown above, at the following locations:

- A left turn-lane traveling north on SR 1221 for the US 29/601 intersection.
- A left turn-lane, traveling south on Kimball Extension for SR 1221 intersection.
- A left turn-lane traveling north on Kimball Extension for SR 2739 intersection.
- A left turn-lane, traveling south on SR 1211 for SR 2739 intersection.
- A cul-de-sac for SR 1221 at the US 29/601 intersection.

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Location Map
Landis / Rowan County

